

**SUBMISSION COVER SHEET**

**IMPORTANT:** Check box if Confidential Treatment is requested

**Registered Entity Identifier Code (optional):** 17-417

**Organization:** Chicago Mercantile Exchange Inc. ("CME")

**Filing as a:**  **DCM**  **SEF**  **DCO**  **SDR**

**Please note - only ONE choice allowed.**

**Filing Date (mm/dd/yy):** 12/01/2017 **Filing Description:** Initial Listing of the Bitcoin Futures Contract.

**SPECIFY FILING TYPE**

**Please note only ONE choice allowed per Submission.**

**Organization Rules and Rule Amendments**

- Certification § 40.6(a)
- Approval § 40.5(a)
- Notification § 40.6(d)
- Advance Notice of SIDCO Rule Change § 40.10(a)
- SIDCO Emergency Rule Change § 40.10(h)

**Rule Numbers:**

**New Product**

**Please note only ONE product per Submission.**

- Certification § 40.2(a)
- Certification Security Futures § 41.23(a)
- Certification Swap Class § 40.2(d)
- Approval § 40.3(a)
- Approval Security Futures § 41.23(b)
- Novel Derivative Product Notification § 40.12(a)
- Swap Submission § 39.5

**Product Terms and Conditions (product related Rules and Rule Amendments)**

- Certification § 40.6(a)
- Certification Made Available to Trade Determination § 40.6(a)
- Certification Security Futures § 41.24(a)
- Delisting (No Open Interest) § 40.6(a)
- Approval § 40.5(a)
- Approval Made Available to Trade Determination § 40.5(a)
- Approval Security Futures § 41.24(c)
- Approval Amendments to enumerated agricultural products § 40.4(a), § 40.5(a)
- "Non-Material Agricultural Rule Change" § 40.4(b)(5)
- Notification § 40.6(d)

**Official Name(s) of Product(s) Affected:**

**Rule Numbers:** Bitcoin Futures (CME Rulebook Chapter 350)

December 1, 2017

**VIA ELECTRONIC PORTAL**

Christopher J. Kirkpatrick  
Office of the Secretariat  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21st Street, N.W.  
Washington, D.C. 20581

**Re: CFTC Regulation 40.2(a) Certification. Notification Regarding the Initial Listing of the Bitcoin Futures Contract.  
CME Submission No. 17-417**

Dear Mr. Kirkpatrick:

Chicago Mercantile Exchange Inc. (“CME” or “Exchange”) hereby notifies the Commodity Futures Trading Commission (“CFTC” or “Commission”) that it is self-certifying the initial listing of the Bitcoin Futures Contract (the “Contract” or “Bitcoin Futures”), for trading on the CME Globex electronic trading platform and for submission for clearing via CME ClearPort effective on Sunday, December 17, 2017, for trade date of Monday, December 18, 2017.

In what follows:

- Section 1: Summarizes contract terms and conditions;
- Section 2: Describes administration, governance, and methodology of the index underlying the Contract;
- Section 3: Highlights feedback from various customer segments;
- Section 4: Details historical pricing and volatility in bitcoin compared to other products; and
- Section 5: Addresses compliance of CME rules and rule amendments certified herein with the pertinent Core Principles for Designated Contract Markets (“Core Principles”) set forth in the Commodity Exchange Act (“Act”).

Furthermore, the CME Rulebook Chapter governing contract terms and conditions certified herein is set forth in Appendix A. Appendix B provides an analysis of deliverable supply. Appendix C addresses the applicable position limits and reportable position levels pursuant to CME Rulebook Chapter 5. Appendix D sets forth the applicable CME Globex non-reviewable trading ranges as prescribed in CME Rule 588.H., and Appendix E defines the pertinent special price fluctuation limits pursuant to CME Rule 589. Appendix F outlines proposed daily settlement procedures.

## Section 1 – Contract Specifications

Exhibit 1 summarizes contract specifications for the Contract.

Bitcoin is a digital asset transacted peer-to-peer that has increasingly garnered public acceptance as a store of value. A substantial number of merchants now accept bitcoin as a medium for the exchange of value; bitcoin is currently the world’s most widely-traded digital asset; and bitcoin can now be readily

exchanged for major currencies. There is currently no designated contract market offering a futures contract on bitcoin.

### **Unit of Trade**

The contract unit of the Bitcoin Futures products is 5 bitcoin, as defined by the CME CF Bitcoin Reference Rate ("BRR"). The BRR reflects the value of one bitcoin in U.S. dollars.

### **Delivery and Delivery Months**

Trading in the Contract will terminate at 4:00 p.m. London time on the last Friday of each contract month. The listing cycle will be comprised of the nearest 2 months in the March Quarterly cycle (Mar, Jun, Sep, Dec) plus the nearest 2 "serial" months not in the March Quarterly cycle. Each expiring contract will deliver by cash settlement via final mark-to-market by reference to the contract final settlement price, equal to the BRR published at 4:00 p.m. London time on the Contract's last day of trading.

Delivery months to be listed for trading initially will be January 2018, February 2018, March 2018, and June 2018. Upon expiration of the January 2018 contract, the April 2018 contract will be listed.

### **Price Basis and Minimum Price Increments**

Contract prices will be quoted in U.S. dollars. For any futures contract, the minimum price increment for an outright transaction will be \$5.00 per bitcoin, equal to \$25.00 per contract. For any intramarket calendar spread transaction, the minimum price increment will be \$1.00 per bitcoin, equal to \$5.00 per contract.

### **Block Trading**

The minimum size threshold for a block trade in the Contract shall be 5 contracts. This represents 25 bitcoin as defined by the BRR.

### **Price Limits**

Trading in the Contract will be subject to price limits both limit-up and limit-down. The Exchange proposes a daily price limit at 20% above or below a reference price, which generally will be set at the most recent daily settlement price but may be adjusted to incorporate BRR changes on non-trading days. Given the volatility of bitcoin, special price fluctuation limits at 7% above or below and 13% above or below the reference price will be implemented.

In the event the market hits the 7% or 13% limit, a cooling off period of 2 minutes will begin. If the market is still at limit at the completion of the cooling off period, trading will be temporarily halted for 2 minutes and will reopen at the expanded limit. Trading will not be permitted outside the range of 20% above or below the reference price.

### **Exhibit 1 – Contract Specifications Bitcoin Futures**

<i>Trading Unit</i>	The unit of trading shall be 5 bitcoin, as defined by the CME CF Bitcoin Reference Rate (BRR).
<i>Listing Schedule</i>	Nearest 2 months in the March Quarterly cycle (Mar, Jun, Sep, Dec) plus the nearest 2 "serial" months not in the March Quarterly cycle. Delivery months for initial listing: Jan 2018, Feb 2018, Mar 2018, June 2018.
<i>Price Basis and Minimum Price Increment</i>	Prices are quoted and traded in U.S. dollar. Minimum price increments -- <i>Outright:</i> \$5.00 per bitcoin, equal to \$25.00 per contract. <i>Calendar spread:</i> \$1.00 per bitcoin, equal to \$5.00 per calendar spread.
<i>Price Limits</i>	Price limits for a given Business Day are calculated in relation to a reference price, which generally will be set at the most recent Bitcoin Futures settlement price, calculated at 4:00 p.m. London time each Business

	Day. The reference price may be adjusted at the sole discretion of the Exchange to incorporate BRR changes on non-trading days. A price limit of 20% above or below the reference price and special price fluctuation limits equal to 7% above or below the reference price and 13% above or below the reference price apply. Trading will not be permitted outside of the 20% range above and below the reference price.
<i>Termination of Trading</i>	Last Day of Trading is the last Friday of the contract delivery month. Trading in expiring futures terminates at 4:00 p.m. London time on the Last Day of Trading.
<i>Delivery</i>	Delivery is by cash settlement by reference to the Final Settlement Price, equal to the CME CF Bitcoin Reference Rate (BRR) on the Last Day of Trading.
<i>Position Limits and Reportable Levels</i>	Spot Position Limits are set at 1,000 contracts. A position accountability level of 5,000 contracts will be applied to positions in single months outside the spot month and in all months combined. The reportable level will be 1 contract.
<i>Minimum Block Trade Threshold Level</i>	5 contracts
<i>Trading Hours And Commodity Code</i>	<i>CME Commodity Code:</i> BTC <i>CME Globex and CME ClearPort:</i> 5:00 p.m. to 4:00 p.m., Sun-Fri. (Central Time)
<i>CME Globex Matching Algorithm</i>	F: First In First Out (FIFO)

**Exhibit 2 -- Exchange Fees for Bitcoin Futures**

<b>Membership Type</b>	<b>Venue/Transaction Type</b>	<b>Exchange Fee</b>
Individual Members Clearing Members Rule 106.J Equity Member Firms & Rule 106.J Qualified Subsidiaries Rule 106.I Members & Rule 106.I Qualified Affiliates Rule 106.S Member Approved Funds	Open Outcry	n/a
	CME Globex	\$2.50
	EFP EFR	\$3.75
	Block	\$3.75
	Delivery	\$1.25
	Exe Asn Future From	n/a
Rule 106.D Lessees Rule 106.F Employees	Open Outcry	n/a
	CME Globex	\$4.00
	EFP EFR	\$6.00
	Block	\$6.00
	Delivery	\$2.00
	Exe Asn Future From	n/a
Rule 106.R Electronic Corporate Members (For other than Globex - Non-Member rates apply)	CME Globex	\$4.10
	CME Globex - BTIC	n/a
Rule 106.H and 106.N Firms	Open Outcry	n/a
	CME Globex	\$4.40
	EFP EFR	\$6.40
	Block	\$6.40
	Delivery	\$2.20
	Exe Asn Future From	n/a
International Incentive Program (IIP) and International Volume Incentive Program (IVIP) Participants (Open Outcry at same rate as Globex for Interest Rate products only)	CME Globex	\$4.50

	CME Globex - BTIC	n/a
Central Bank Incentive Program (CBIP), Emerging Markets Bank Incentive Program (EMBIP), Latin American Fund Manager Incentive Program (FMIP), Latin American Proprietary Trading Incentive Program (LAPTIP) Participants (For other than Globex - Non-Member rates apply)	CME Globex	\$4.85
	CME Globex - BTIC	n/a
Members Trading Outside of Division (For other than Globex During ETH - Non-Member rates apply)	CME Globex During ETH Only	\$4.75
Non-Members	Open Outcry	n/a
	CME Globex	\$5.00
	EFP EFR	\$7.50
	Block	\$7.50
	Delivery	\$2.50
	Exe Asn Future From	n/a

Processing Fees	Fee
106.D Lessee/106.H Brokerage	\$0.13
106.F Employee Brokerage	\$0.13
Floor / "New" Brokerage	\$0.04
Position Adjustments/Position Transfers	\$0.10
Give-Up Surcharge	\$0.05
Facilitation Fee	\$0.40

## Section 2 – Index Administration, Governance, and Methodology

The Contract uses the BRR for final settlement. The BRR, published since November 2016, is calculated by Crypto Facilities, a financial services firm for digital assets, including bitcoin. The BRR is published once per day, every day of the year, at 4:00 p.m. London time on the CME Group Bitcoin website. The BRR is governed by an oversight committee (the “Committee”). The Committee charter and BRR practice standards are available on the CME Group Bitcoin website (see link below). The Committee is comprised of a Crypto Facilities representative, two (2) representatives from CME Group, and at least two (2) independent bitcoin experts (currently 4). The Committee meets at least once per quarter and publishes its minutes publicly on the [CME Group Bitcoin website](#).

The BRR is calculated from BTC:USD data transacted on the BRR’s constituent exchanges. In order to become a constituent exchange, the following criteria (also publicly posted on the CME Group Bitcoin website) must be met:

1. The venue facilitates spot trading of bitcoin against U.S. Dollars and makes trade data and order data available through an Automatic Programming Interface (API) with sufficient reliability, detail and timeliness.

2. The venue's bitcoin vs. U.S. Dollar spot trading volume contributed at least 3% to the total bitcoin vs. U.S. Dollar spot trading volume of all other Constituent Exchanges during each of the last two consecutive calendar quarters.
3. The venue maintains fair and transparent market conditions at all times and has processes in place to identify and impede illegal, unfair or manipulative trading practices.
4. The venue does not impose undue barriers to entry or restrictions on market participants, and utilizing the venue does not expose market participants to undue credit risk, operational risk, legal risk or other risks.
5. The venue complies with all applicable law and regulation, including, but not limited to capital markets regulations, money transmission regulations, client money custody regulations, know-your-client (KYC) regulations and anti-money-laundering (AML) regulations.
6. The venue cooperates with inquiries and investigations of regulators and the Calculation Agent upon request.
7. Promoting the venue to Constituent Exchange will further the BRR usefulness as transparent, unbiased and representative indicators of the U.S. Dollar price of bitcoin.

At the time of submission, the BRR has six (6) constituent exchanges, two (2) of which (Bitfinex and OkCoin) are temporarily suspended from contributing to the assessment due to fiat transfer restrictions. Upon successful correction of the restrictive action, the suspended exchanges may have the potential to resume contribution to the BRR. The four (4) contributing constituent exchanges are: Bitstamp, GDAX, itBit, and Kraken. Together, these four (4) exchanges collectively represent up to 35% of the total BTC:USD trade globally. In the aggregate, the four (4) actively contributing constituent exchanges host several thousand bitcoin transactions on a daily basis within the calculation window described below.

The BRR methodology is transparent and publicly available in its entirety on the CME Group Bitcoin website. The methodology is in accordance with market best practices and IOSCO principles. The assessment is calculated based on one hour of BTC:USD trades per day from 3:00 p.m. to 4:00 p.m. London time (the "Observation Period"). The trades are reported through each constituent exchange's API to Crypto Facilities. The calculation methodology for the BRR is as follows:

1. All Relevant Transactions are added to a joint list, recording the trade price and size for each transaction.
2. The list is partitioned into 12 equally-sized time intervals of 5 minutes each.
3. For each partition separately, the volume-weighted median trade price is calculated from trades submitted by each exchange.
4. The BRR is then calculated as the equally-weighted average of the volume weighted medians of all partitions.

Data validation checks are carried out, and any data provided that is outside of a 25% deviation tolerance of the other constituent exchanges results in the entire data set from that particular constituent exchange being discarded.

Several measures were approved by the Committee to ensure that the assessment is resistant to manipulation. The use of medians reduces the effect of outlier prices on one or more exchanges and the volume weighting of medians filters out high numbers of small trades. The use of non-weighted partitions assures price information is sourced equally over the entire Observation Period.

Statistical analysis indicates that the BRR accurately reflects the underlying spot market. Since the BRR's publication in November 2016, in comparing the daily BRR to the VWAP of the constituent exchanges' bitcoin price during the BRR's calculation window, the average variation has been \$1.08. The largest variation to the VWAP of the constituent exchanges' bitcoin price has been \$93.62 (2.5%). While the BRR is not defined as an instantaneous price of bitcoin, when comparing the daily BRR to the constituent exchanges' price of bitcoin in USD at 4:00 p.m. London, the average variation in prices has been only \$0.31.

## Section 3 – Customer Feedback

Since the publication of the BRR, the Exchange has received multiple inquiries on CME's potential launch of a bitcoin derivatives contract. Since then, the demand for a regulated trading venue has continued to grow. In the early development stages of the Contract, the Exchange engaged a group of clients that represented a cross-section of the bitcoin industry. Within this group, contract specifications and other details of a futures contract were discussed and validated over the course of approximately six months.

Subsequent to publicly announcing its intention to launch the Contract, the Exchange has fielded hundreds of calls and e-mails from customers communicating interest, including buy-side clients, commercial participants, potential market makers, and Exchange-Traded Fund (ETF) providers. These customers have spanned the spectrum by both market segment and geography. Several bank and non-bank Futures Commission Merchants ("FCMs") have indicated the highest likelihood for early support, and several pledged commitments for day-one of bitcoin futures trading.

While most FCM feedback has been positive, there has also been vocal trepidation accompanying the Exchange's public announcement. Some clearing firms have expressed concern about the volatility of bitcoin, which is addressed below. Such views propose that bitcoin is best funded, margined and cleared in a separate guarantee fund from other Exchange products.

In addressing this issue and to determine the potential impact, the Exchange performed a business analysis of the situation covering the asset's volatility and corresponding margin requirements. The Exchange's proposed margin framework for the Contract particularly considered the BRR's volatility profile, and calculated margin to capture the most extreme one and two-day price moves since the BRR's inception. The opening margin level for the Contract would have covered 100% of all one and two-day price moves in the BRR between 2016 and 2017. The analysis concerning the volatility of bitcoin is covered in Section 4.

## Section 4 – Volatility

Bitcoin prices can be highly volatile, but the Exchange has managed both periods of prolonged volatility in commodities as well as unexpected spikes in volatility in financial products. The Exchange is also prepared to deploy proven risk controls on the Contract, including special price fluctuations, daily price limits, and margin levels that appropriately reflect the volatility of bitcoin.<sup>1</sup>

Though the spikes in bitcoin volatility can look extreme, the daily price movements of the BRR are in line with some other exchange-listed contracts and reference rates that underlie exchange-listed contracts. Since the publication of the BRR, and as of November 16, 2017, the average daily BRR price move has been 3%.<sup>2</sup> By way of example, in 2016 crude oil experienced an average daily price move of 2.27%. Likewise, the Volatility Index (VIX), a major financial barometer that underlies an array of securities and derivatives, experienced average daily price moves of over 5% in 2016 and 4.53% in 2017.

Under comparable timeframes, commodities have experienced realized volatility levels that are in line with bitcoin realized volatility. Crude oil volatility at times hovered near 125% in 2008-2009, and was consistently above 50% in 2015 and 2016. Silver has also experienced periods of volatility near 100% in late 2008 and 2011. Likewise, natural gas has experienced volatility levels that are often routinely over 50% with highs over 100% in late 2009 and mid-2014. When compared to the volatility of the VIX, which periodically can reach 250%, bitcoin volatility can be viewed as relatively less significant. During the last decade, let alone

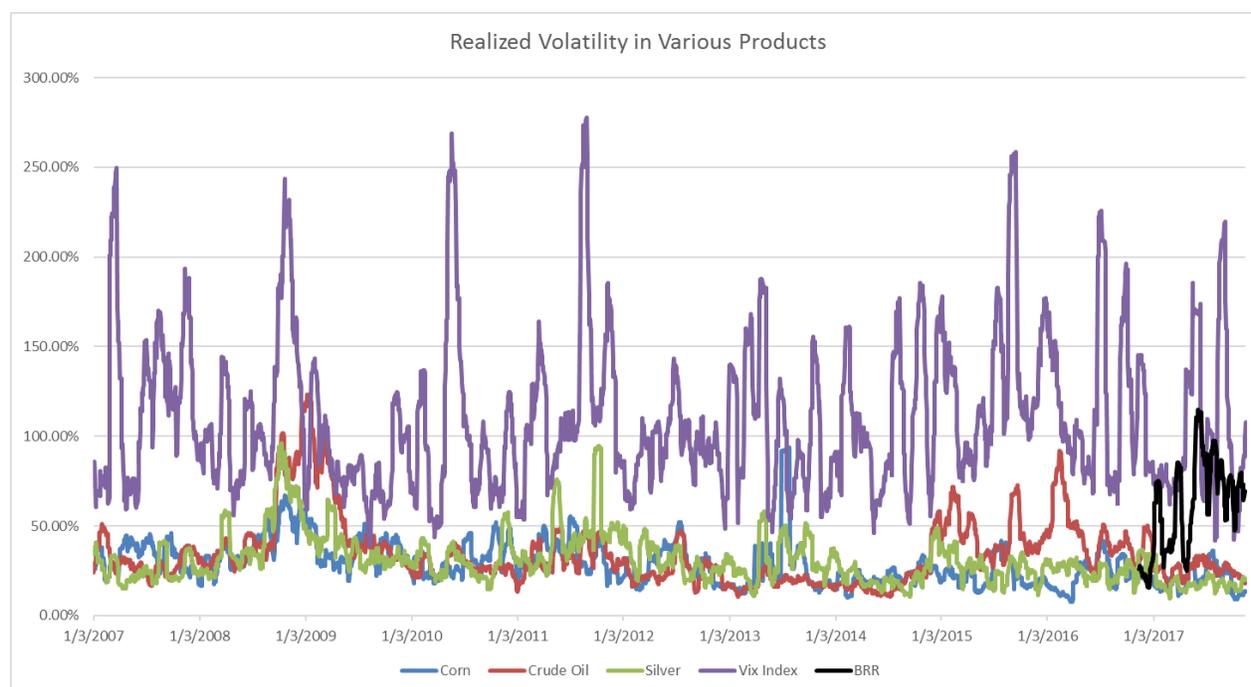
---

<sup>1</sup> All non-BRR price data referenced in Section 4 was sourced from Bloomberg data sets.

<sup>2</sup> Daily price fluctuations are simply an average, over a selected period, of the percent moves in daily prices of a given product. Volatility measures the dispersion of returns on a given product. Average daily price movements may be related to volatility, but the measures are distinctly different, as volatility measures put more weight on extraordinary outliers of movement.

during the operational history of CME, the Exchange has multiple instances of successful management of high volatility environments in commodity contracts.

### **Exhibit 3 – Comparative Volatilities**



Other futures contracts, including those based on financial commodities, have experienced bursts of realized volatility. During the 2008-2009 financial crisis, the S&P 500 futures contract experienced a spike in volatility to nearly 100%, and in 2013 the volatility climbed to almost 50%. The Russian Ruble/U.S. Dollar futures contract has a volatility that has often routinely hovered near 10%, but has twice seen dramatic upward movements to 90% within the last five years. Likewise, the Japanese Yen/U.S. Dollar futures contract experienced volatility levels at almost 95% in late 2008.

These instances of both physical and financial volatility shows that the Exchange is well adept at handling both prolonged periods of volatility and steep, brief jumps in volatility.

## **Section 5 – Compliance with Core Principles**

The Exchange has reviewed the Core Principles as set forth in the Act and has identified that the listing of the Contract may bear upon the following Core Principles:

### **Core Principle 2 – Compliance with Rules**

Trading in the Contract will be subject to CME Rulebook Chapter 4, which includes prohibitions against fraudulent, noncompetitive, unfair, and abusive practices. Additionally, trading in these contracts will be subject to the Exchange's trade practice rules, the majority of which are contained in Chapter 5 and Chapter 8 of the Rulebook. Trading activity in the Contract will also be subject to monitoring and surveillance by CME Group's Market Regulation Department, which has the authority to exercise its investigatory and enforcement power where potential rule violations are identified.

### **Core Principle 3 – Contracts Not Readily Subject to Manipulation**

As referenced above, the Exchange certifies that the underlying reference rate, the CME CE Bitcoin Reference Rate, is not readily subject to manipulation.

300 Vesey Street New York, NY 10282 T 212 299 2200 F 212 299 2299 christopher.bowen@cmegroup.com cmegroup.com

The calculation methodology has been created in accordance with the IOSCO principles. The index is calculated from a large number of trades observed during the calculation window. The combination of volume weighting of medians plus non-weighted partitions prevents manipulation in the reference rate. Ultimately, influencing the BRR would require significant trading activity on several exchanges over an extended period of time.

#### ***Core Principle 4 – Prevention of Market Disruption***

Trading in the Contract will be subject to CME Rulebook Chapters 4 and 7, which include prohibitions on manipulation, price distortion, and disruption to the expiration and assignment process. As with any new product listed for trading on a CME Group designated contract market, trading activity in the contracts certified herein will be subject to monitoring and surveillance by CME Group's Market Regulation Department. The Exchange will initially and may on an ongoing basis supplement the monitoring process by providing expiration surveillance reports to the Commission's Division of Market Oversight staff.

#### ***Core Principle 5 – Position Limits or Accountability***

The speculative position limits for the Contract as demonstrated in this submission are consistent with the Commission's guidance.

#### ***Core Principle 7 – Availability of General Information***

The Exchange will disseminate a Special Executive Report ("SER") to market participants regarding the launch of the Contract. The SER will also be published on the Exchange's website.

#### ***Core Principle 8 – Daily Publication of Trading Information***

The Exchange will publish trading volumes, open interest levels, and price information daily of the Contract on its website and through quote vendors.

#### ***Core Principle 9 – Execution of Transactions***

The Contract will be listed for trading on the CME Globex electronic trading and for clearing through CME ClearPort. The CME Globex electronic trading venue provides for competitive and open execution of transactions. CME Globex affords the benefits of reliability and global connectivity.

#### ***Core Principle 10 – Trade Information***

All requisite trade information will be included in the audit trail and will suffice for the Market Regulation Department to monitor for market abuse.

#### ***Core Principle 11 – Financial Integrity of Transactions***

The Contract will be cleared by CME Clearing, which is registered with the Commission as a derivatives clearing organization, and which is subject to all CFTC regulations related thereto.

#### ***Core Principle 12 – Protection of Markets and Market Participants***

CME Rulebook Chapters 4 and 5 set forth multiple strictures that preclude intermediaries from disadvantaging their customers. These Rules apply to trading in all of the Exchange's competitive trading venues and will apply to transactions in the Contract.

#### ***Core Principle 13 – Disciplinary Procedures***

CME Rulebook Chapter 4 provides for the Exchange to discipline, suspend, or expel members or market participants who violate the rules of the Exchange. Trading in the Contract shall be subject to these provisions. The Exchange's Market Regulation Department has the authority to exercise its powers of enforcement, in the event that rule violations in these products are identified.

#### ***Core Principle 14 – Dispute Resolution***

Disputes in respect of the Contract shall be subject to the arbitration provisions set forth in CME Rulebook Chapter 6, which allow all nonmembers to submit to arbitration claims for financial loss resulting from transactions on the Exchange. Pursuant to these provisions, any member named as a respondent in any

such claim submitted by a nonmember is required to participate in arbitration proceedings. Additionally, the Exchange requires members to resolve via arbitration all disputes concerning transactions on the Exchange.

The Exchange certifies that the Contract complies with the Act including all regulations thereunder. Certain market participants expressed concerns as noted in Section 3. The Exchange considered these concerns and the presented views of market participants.

The Exchange certifies that this submission has been concurrently posted on the Exchange's website at: <http://www.cmegroup.com/market-regulation/rule-filings.html>

Should you have any questions concerning the above, please contact the undersigned at (212) 299-2200 or [CMEGSubmissionInquiry@cmegroup.com](mailto:CMEGSubmissionInquiry@cmegroup.com).

Sincerely,

/s/ Christopher Bowen  
Managing Director and Chief Regulatory Counsel

Attachments:	Appendix A	Rulebook Chapter 350 Bitcoin Futures
	Appendix B	Deliverable Supply Analysis
	Appendix C	Position Limit, Position Accountability, and Reportable Level Table in Chapter 5 of the CME Rulebook (attached under separate cover)
	Appendix D	CME Rule 588.H. – (“Globex Non-Reviewable Trading Ranges”) Table
	Appendix E	CME Rule 589. – (“Special Price Fluctuation Limits and Daily Price Limits”) Table
	Appendix F	Daily Settlement Procedures

## **Appendix A**

### **Chapter 350 Bitcoin Futures**

#### **35000. SCOPE OF CHAPTER**

This chapter is limited in application to Bitcoin Futures. In addition to this chapter, futures shall be subject to the general rules and regulations of the Exchange as applicable.

#### **35001. CONTRACT SPECIFICATIONS**

Each futures contract shall be valued at 5 bitcoin as defined by the CME CF Bitcoin Reference Rate ("BRR").

#### **35002. TRADING SPECIFICATIONS**

##### **35002.A. Trading Schedule**

Futures contracts shall be scheduled for trading during such hours and for delivery in such months as may be determined by the Exchange.

##### **35002.B. Trading Unit**

The unit of trading shall be 5 bitcoin.

##### **35002.C. Price Increments**

The minimum price increment shall be \$5.00, equal to \$25.00 per contract, except for intermonth spreads executed pursuant to Rule 542.A., for which the minimum price increment shall be \$1.00, equal to \$5.00 per intermonth spread.

##### **35002.D. Position Limits, Exemptions, Position Accountability and Reportable Levels**

The applicable position limits and/or accountability levels, in addition to the reportable levels, are set forth in the Position Limit, Position Accountability and Reportable Level Table in the Interpretations & Special Notices Section of Chapter 5.

A Person seeking an exemption from position limits for bona fide commercial purposes shall apply to the Market Regulation Department on forms provided by the Exchange, and the Market Regulation Department may grant qualified exemptions in its sole discretion.

Refer to Rule 559 for requirements concerning the aggregation of positions and allowable exemptions from the specified position limits.

##### **35002.E. Daily Price Limits**

Futures trading shall be subject to Price Limits as set forth in this Rule.

For the purpose of this Rule the Exchange shall determine, in its sole discretion, the futures delivery month that represents the Primary Futures Contract Month and when such Primary Futures Contract Month is limit bid or limit offered.

For a given Business Day, Price Limits applicable to a futures contract for a given delivery month shall be calculated on the basis of a reference price, which generally is set at the settlement price of the previous Business Day, but may be adjusted at the sole discretion of the Exchange to account for BRR changes on non-trading days, as follows:

7% Price Limit = Prior Day's Reference Price plus and minus 7%

13% Price Limit = Prior Day's Reference Price plus and minus 13%

20% Price Limit = Prior Day's Reference Price plus and minus 20%

If the lead contract month (as identified by the Exchange) is bid or offered via Globex at the upper or lower price fluctuation limit at the first special price fluctuation limit level, as applicable, it will be considered a triggering event that will begin a two (2) minute monitoring period in the lead contract month. If, at the end of the two (2) minute monitoring period, the lead contract month of the primary futures contract is not bid or offered at the applicable special price fluctuation limit, the special price fluctuation limits shall be expanded an additional increment above and below the relevant reference price for all delivery months of the contract. If, however, at the end of the two (2) minute monitoring period, the lead contract month is bid or offered at the applicable special price fluctuation limit, a two (2) minute temporary trading halt will commence in all contract delivery months of the contract. Following the end of a temporary trading halt, the affected markets shall re-open simultaneously in all contract delivery months of the contract. When trading resumes, the special price fluctuation limits shall be expanded an additional increment above and below the relevant reference price for all delivery months contract. In the instance in which a second

triggering event occurs, the same two (2) minute monitoring period will commence and limits will expand to the daily price limit, followed by either a two (2) minute temporary trading halt or a return to trading as determined by the bid or offer being at limit.

Trading will not be permitted outside the 20% above or below the relevant reference price. In the event that the daily price limit of 20% is hit, trading will not be halted. Trading will continue to be permitted within the daily price limit of 20%.

**35002.F. Termination of Trading**

Trading in expiring futures shall terminate at 4pm London time on the last Friday of the contract month. If that day is not a business day in both the UK and the US, trading shall terminate on the preceding day that is a business day for both the UK and the US. Trading shall terminate at 4pm London time on the Last Trade Date.

**35003. SETTLEMENT PROCEDURES**

Delivery shall be by cash settlement.

**35003.A. Final Settlement Price**

For a futures contract for a given delivery month, the Final Settlement Price shall be the BRR published at 4pm London time on the Last Trade Date (Rule 35002.F.).

In the event that the BRR is not publishable or published on the CME Bitcoin Futures Termination of Trading day, and therefore, CME cannot determine the CME Bitcoin Final Settlement Price, then final settlement of the CME Bitcoin futures contract is at the discretion of the Exchange and may be deferred or postponed for up to 14 consecutive calendar days.

**35003.B. Final Settlement**

Clearing members holding open positions in an expiring futures contract at its termination of trading (Rule 35002.F.) shall make payment to or receive payment from the Clearing House in accordance with normal variation margin procedures based on such expiring contract's Final Settlement Price (Rule 35003.A.).

**35004. RESERVED**

**35005. POLICY ON DIVISIONS OF BITCOIN ASSET**

In the event that a hard fork, user activated soft fork, or other process that results in a division or split of bitcoin into multiple non-fungible assets is expected, the Exchange shall have the discretion to take action in consultation with market participants to align Bitcoin Futures position holder exposures with cash market exposures as appropriate. Appropriate action could include providing cash adjustments or assigning newly listed futures or options contract positions to Bitcoin Futures position holders.

(End Chapter 350)

## **Appendix B**

### **Deliverable Supply Analysis**

#### **Overview:**

Bitcoin is a digital asset created by an anonymous person or group of people under the name Satoshi Nakamoto. This digital asset is transacted peer-to-peer and has grown in acceptance: it is now accepted as a medium for the exchange value by established goods and service providers,<sup>1</sup> including Expedia, Overstock, and Microsoft.<sup>2</sup> Bitcoin can also be readily exchanged for major currencies.

#### **How Bitcoin are Created and Released:**

Upon release of bitcoin in 2009, Satoshi Nakamoto coded the creation of 21 million bitcoin. That number has been accepted as the total number of bitcoin that will ever be created.

In order to release bitcoin not currently in circulation, the coins need to be mined. Miners are individuals or groups who work to verify bitcoin transactions on the blockchain. Once they have gathered a specific amount of “pending” transactions (the status of a transaction from Holder A to Holder B before certified by a miner), verified that all transactions are legitimate, and posted them as a “block” by solving a hashing function, the miner unlocks new bitcoin into circulation and takes ownership of the new bitcoin. The miners are an important part of preserving the blockchain ledgers and are rewarded with new bitcoin for their work as well as transaction fees paid by parties sending bitcoin.

There is a limit to the amount of bitcoin issued when each miner mines a new block. At origination, 50 bitcoin were released into circulation for every block mined. That number halves at given intervals. As of July 2016, the amount of bitcoin released upon successfully mining a block was cut to 12.5, and the next cut to 6.25 is slated to occur in 2020. This system is in place to systematically decrease the rate at which new bitcoin are issued into circulation. Ultimately, as previously stated, the maximum number of bitcoin that will ever be in circulation is the 21 million initially set by Nakamoto.

#### **Bitcoin in Circulation:**

Of the 21 million bitcoin created, just over 16.6 million bitcoin are in circulation as of October 2017 (Figure 1).<sup>3</sup> This represents almost 80% of all the bitcoin supply originally set by Nakamoto. The percent growth of bitcoin in circulation has understandably slowed since its inception. In the January 2009, the first month of bitcoin’s life, bitcoin in circulation was growing by an average of 100% day over day. At the conclusion of January 2009, bitcoin in circulation had soared from 50 to over 125,000 coins.

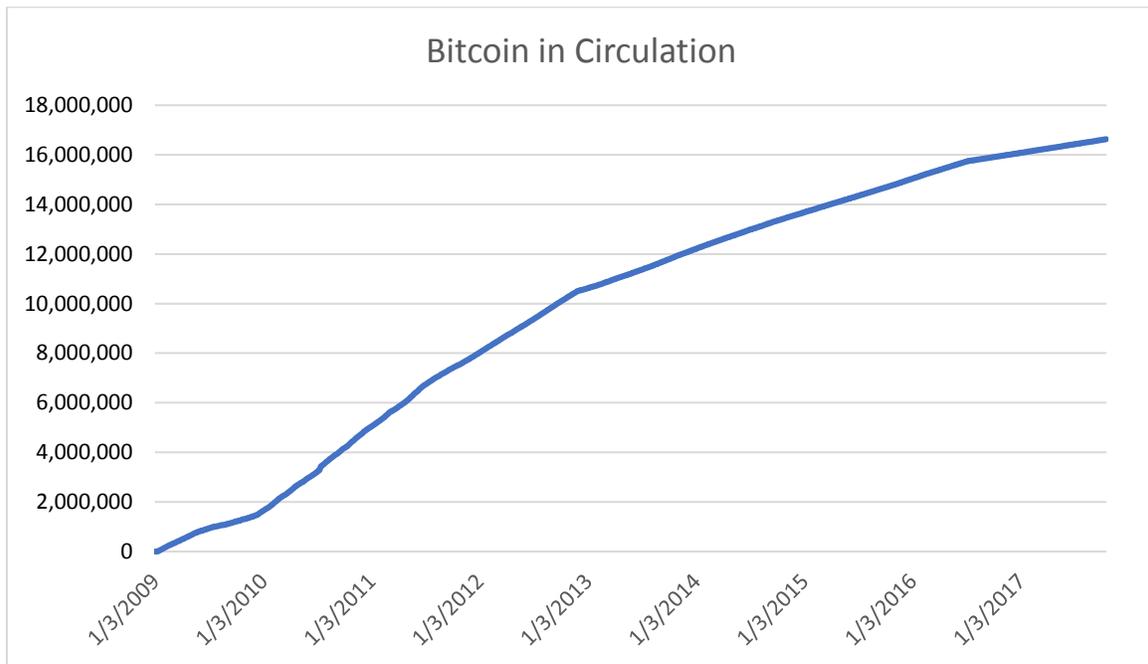
---

<sup>1</sup> <http://www.ibtimes.co.uk/bitcoin-now-accepted-by-100000-merchants-worldwide-1486613>

<sup>2</sup> <https://99bitcoins.com/who-accepts-bitcoins-payment-companies-stores-take-bitcoins/>

<sup>3</sup> <https://blockchain.info/charts/total-bitcoins?timespan=all>

Figure 1



The historical supply of bitcoin over the last several years demonstrates that the growth in bitcoin in circulation is slowing. The percent change in circulating bitcoin from 2009 to 2010 was over 250%, and that has slowed to under 10% from 2015 to 2016 (Table 1).

Table 1

Year	Total Bitcoin in Circulation at EOY	Total Percent Increase	Average Bitcoin in Circulation	Average Percent Increase
2009	1,623,400		851,439	
2010	5,010,150	208.62%	3,288,745	286.26%
2011	8,000,050	59.68%	6,604,402	100.82%
2012	10,613,175	32.66%	9,371,011	41.89%
2013	12,194,575	14.90%	11,380,586	21.44%
2014	13,670,575	12.10%	12,960,176	13.88%
2015	15,025,000	9.91%	14,342,474	10.67%
2016	16,073,550	6.98%	15,641,818	9.06%

Ultimately, the number of bitcoin in circulation as of this submission is over 16.6 million bitcoin. The growth of the bitcoin in circulation is expected to slow with time, eventually ending at 21 million bitcoin.

**Transactions:**

Although there are over 16 million bitcoin in circulation, not every bitcoin is transacted each day. The number of transactions on the blockchain is public and easily trackable, summarized in Table 2 below. However, there is no reliable data source that details the number of bitcoin involved in each transaction, so it is impossible to know the exact number of bitcoin that trade hands each day. Conservatively, each transaction could be for a fraction of a bitcoin; alternatively, each transaction could represent several

hundred bitcoin. Therefore, estimating the overall amount of bitcoin changing hands in these transactions cannot be calculated with specificity.

Table 2<sup>4</sup>

Year	Total Bitcoin Transactions (per year)	Total Percent Increase
2009	16,395	
2010	93,581	470.79%
2011	951,980	917.28%
2012	4,213,325	342.59%
2013	9,779,597	132.11%
2014	12,677,842	29.64%
2015	22,819,112	79.99%
2016	41,475,007	81.76%

There is evidence that some bitcoin is never transacted, whether because it has been burned<sup>5</sup> or because the owners of said coins have desire to simply hold them. Though efforts have been made to identify the total amount of burned bitcoin – the number has been estimated around 2,700 bitcoin<sup>6</sup> - and the amount unlikely to be spent, it is impossible to determine this for the purposes of deliverable supply analysis.

#### **Deliverable Supply:**

As previously laid out, the underlying available supply of bitcoin is over 16.6 million coins. Because the contract will be settled upon the aggregation of four exchanges trading bitcoin versus U.S. dollars (USD), the deliverable supply analysis herein conservatively focuses on the proportion of bitcoin globally traded versus USD, which is estimated at one quarter (25%) of total bitcoin traded.<sup>7</sup> Using this as a proxy results in a deliverable supply of 4.15 million bitcoin. Conservatively, even estimating a large number of bitcoin as burned or unlikely to spend leaves an exceedingly large supply of bitcoin in circulation.

An acceptable practice for calculating spot month position limits is to link such limits to one-quarter of the average quantity of the commodity in the lowest months of the previous three years. Table 3 (below) shows the average number of bitcoin in circulation (in millions) for each month since 2014. As bitcoin is a digital asset that keeps growing in supply month over month, January has historically been the month with the lowest number of bitcoin in circulation. The average circulation from 2014-2016 in January has been 13,700,000 bitcoin, which equates to 2.74 million futures contracts (contract size: 5 bitcoins). Taking 25% of that in order to adjust for bitcoin traded versus USD would result in 685,000 contracts. Under the acceptable practice for setting spot position limits, one-quarter of deliverable supply would result in a spot month position limit of 171,250 contracts. The Exchange does not recommend setting initial position limits at that level.

<sup>4</sup> <https://blockchain.info/charts/n-transactions>

<sup>5</sup> Burned bitcoin refer to coins that will never be spent. For example, if the bitcoin were sent to a public address without any party knowing or having a way to compute the private key, the bitcoin associated with that key are considered “burned.”

<sup>6</sup> <http://bitcoinwhoswho.com/blog/2016/12/21/btc-burn-addresses/>

<sup>7</sup> <https://www.cryptocompare.com/coins/btc/analysis/USD>

Table 3

Month	2014	2015	2016	2017	Average 2014-2016
January	12.27	13.73	15.09	16.11	13.70
February	12.40	13.84	15.21	16.17	13.82
March	12.52	13.95	15.32	16.22	13.93
April	12.65	14.06	15.44	16.28	14.05
May	12.78	14.17	15.55	16.33	14.17
June	12.91	14.28	15.66	16.39	14.28
July	13.03	14.39	15.76	16.45	14.39
August	13.15	14.50	15.82	16.51	14.49
September	13.28	14.62	15.87	16.57	14.59
October	13.39	14.73	15.93	16.62	14.68
November	13.50	14.85	15.99		14.78
December	13.61	14.97	16.05		14.88

Another acceptable practice for setting spot month position limits, which is specific to foreign exchange products, is to set limits at 1% of currency in circulation. Under this practice, position limits would be determined by taking 1% of bitcoin in circulation, or 166,000 bitcoin, and adjusting that figure downward to approximately 41,500 (8,300 futures contract equivalents) to reflect bitcoin traded versus USD. As with position limits set at 25% of bitcoin deliverable supply, the Exchange does not recommend setting initial position limits at 8,300 contracts (contract size: 5 bitcoin).

In accordance with standard procedure, the Exchange recommends an initial spot month position limit of 1,000 contracts. The limit of 1,000 contracts is the equivalent of 5,000 bitcoin or 0.036% of the underlying deliverable of 13,700,000 bitcoin as defined above.

**Appendix C**

**Position Limit, Position Accountability, and Reportable Level Table in Chapter 5 of the CME Rulebook**

(Attached under separate cover)

**Appendix D**

**CME Rule 588.H. (“Globex Non-Reviewable Trading Ranges”) Table**

(Additions underscored.)

Instrument Name	Globex Symbol	Outright			Spreads	
		Globex Non-Reviewable Ranges (NRR)	NRR: Globex Format	NRR: Ticks	NRR: Globex Format	NRR: Minimum Outright Ticks
<u>Bitcoin Futures</u>	<u>BTC</u>	<u>1%</u>	<u>Variable</u>	<u>Variable</u>	<u>Each leg is evaluated as an outright</u>	

**Appendix E**

**CME Rule 589. (“Special Price Fluctuation Limits and Daily Price Limits”) Table**

(Additions underscored.)

Product	Rulebook Chapter	Commodity Code	Primary/Associated	Associated With	Base in Real Economic Value	Level
<u>Bitcoin Futures</u>	<u>350</u>	<u>BTC</u>	<u>Primary</u>	<u>Primary</u>		<u>See Rulebook Chapter</u>

## **Appendix F**

**Note:** In the event the aforementioned calculations described in this advisory cannot be made or if CME Group staff, in its sole discretion, determines that anomalous activity yields results that are not representative of the fair value of the contract, the staff may determine an alternative settlement price.

### **Daily Settlement Procedures**

#### **Normal Daily Settlement Procedure**

CME Group staff determines the daily settlements for Bitcoin futures based on trading activity on CME Globex between 15:59:00 and 16:00:00 London Time, the settlement period.

#### **Tier 1: Trades on CME Globex**

All contract months settle to the volume-weighted average price (VWAP) of outright trades between 15:59:00 and 16:00:00 London Time, the settlement period, rounded to the nearest tradable tick. If the VWAP is equidistant between two ticks it will be rounded towards the prior day settlement price.

#### **Tier 2: CME Globex Market Data**

In the absence of trades during the settlement period, the contract month settles to the midpoint of the Bid/Ask between 15:59:00 and 16:00:00 London Time, the settlement period.

#### **Tier 3: Absence of Two Sided Markets**

If there are no two sided markets available during the settlement period in a particular contract month, then the settlement price will be the net change of the CME Bitcoin Reference Rate (BRR) added to the prior day futures contract settlement (provided that settlement is within the Bitcoin futures price limits), adjusted to the Bid/Ask if one side is present.